

THE EFFECTIVENESS OF SCRAMBLE LEARNING MODEL ON STUDENTS MATHEMATICS LEARNING OUTCOMES IN CLASS VII

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ABSTRACT

SMP Muhammadiyah 1 Minggir is one of the schools whose learning result of mathematics is still low. The learning process used is still teacher-centered and less varied. This makes the student's lack of attention to the teacher's explanations in the classroom learning. One of the learning models that focuses students' attention on teacher explanation is the Scramble learning model. The purpose of this study to determine the effectiveness of learning models between students who use the Scramble learning model to students in class VII odd semester junior high school (SMP) of Muhammadiyah 1 Minggir Sleman District Academic Year 2019/2020. This study population is the seven graders of junior high school Muhammadiyah 1 Minggir Sleman District Academic Year 2019/2020, which consists of seven classes. The technique of sampling research used a random sampling technique that is by lottery. The classes obtained are class VII B as the experimental class using the Scramble learning model and VII C as the control class using the direct learning model. Methods of data collection using the method of documentation of students' initial ability and test. Research instruments consisting of interviews with teachers and students, observations, and multichoice mathematical test results. Data analysis used is a prerequisite analysis test consisting of normality test and homogeneity test, then a hypothesis test using t-test the first hypothesis and t-test the second hypothesis. The significant level of 5% and $DF = 62$ show that: (1) there are differences in students mathematics learning outcomes using Scramble and mathematics learning outcomes of students who use direct learning. This was evidenced by the value of $t_{count} = 2,7891$ and $t_{table} = 1,9989$, so that $t_{count} > t_{table}$ means rejecting H_0 . (2) Mathematic learning of students who used the Scramble learning model was more effective than students who used direct learning on mathematics learning outcomes. The value of $t_{count} = 2,7891$ evidenced this and $t_{table} = 1,6698$, so that $t_{count} > t_{table}$ means that rejecting H_0 .

Keywords: effectiveness, Scramble, learning outcomes

INTRODUCTION

Education plays an important role in preparing human resources for life in the future. Education is a human effort to develop their potential, including through the learning process in schools, Elementary Schools, Junior High Schools, Senior High Schools, Vocational High Schools, and Higher Education, each with a specific vision, mission, and goals. The education process will be widely assessed because it is one of the benchmarks for a nation's success and progress.

Mathematics is one of the subjects that play an important role in shaping students into quality human beings because mathematics forms a systematic and logical mindset. Therefore it is necessary to improve the quality of education in mathematics by improving learning outcomes and motivation to learn mathematics in schools. In learning mathematics, learning is needed that includes students to actively participate in learning activities so that there is a relationship between the teacher and students or students and other students.

Based on an interview conducted on one of the seventh-grade mathematics teachers of SMP Muhammadiyah 1 Minggir, Sleman, Ibu Endah Kusumawati obtained information that the school uses the 2013 Curriculum Minimum Completeness Criteria (MCC) of class VII is 75. In the mathematics learning process, the teacher uses the direct learning model. The classroom's learning process is still dominated by the teacher and students' passivity, which results in a lack of learning interaction between the teacher and students.

Also, based on information from several VII grade students of SMP Muhammadiyah 1 Minggir, Sleman Regency, it was found that there were still many students who did not like mathematics because it was difficult and boring. This results in a lack of student attention to the explanation of the teacher in learning mathematics. If this does not change the learning pattern, students will have difficulty solving problems or problems. Consequently, the learning value obtained by students will be low.

This can be seen from the odd semester midterm scores of Grade VII students of SMP Muhammadiyah 1 Minggir, Sleman Regency in 2019/2020, where the average scores of students learning mathematics are still low when viewed from the MCC set at SMP Muhammadiyah 1 Out of class VII which is 75, there are still many students who have not yet reached the MCC. According to the teacher's mathematics subject at SMP Muhammadiyah 1 Minggir. The low student mathematics learning outcomes can be seen from the odd semester midterm grades of Grade VII students at SMP Muhammadiyah 1 Minggir Sleman Regency in 2019/2020 in table 1 as follows:

Table 1. The score of Odd Semester Semester Lesson Mathematics Students of Class VII SMP Muhammadiyah 1 Minggir Sleman Regency Academic Year 2019/2020

Information	Class						
	VIIA	VII B	VII C	VII D	VII E	VII F	VII G
Average	64,9062	68,0312	64,75	66,9310	65,8	68,0333	64,8709
Max	82	82	80	78	85	82	85
Min	42	52	42	42	48	42	42
< MCC	23	19	28	22	23	21	26
≥ MCC	9	12	4	7	7	9	5
Total Student	32	32	32	29	30	30	31

One of the factors influencing students' poor learning outcomes in mathematics is that teachers do not precisely choose the learning model. The teacher's learning model should be a learning model that can attract students' attention so that the learning process can provide better results than before. One learning model that can attract students' attention is the scramble learning model.

Scramble learning model can improve student learning outcomes because, in this method, students are asked to answer questions and quickly guess the available answers but are still in random conditions. The accuracy and speed of thinking in answering questions become key in scramble learning method games. Student scores are determined by how many questions are correct and how quickly the questions are done. The scramble learning method works because the teacher presents the material by the learning topic, and then the teacher explains the material. Then the teacher distributes worksheets with randomized answers to the order. The teacher gives a specific duration for working on the questions, and students work on the questions based on the allotted time.

This study's problems are: 1) Is there a difference between mathematics learning outcomes using the Scramble learning model and mathematics learning outcomes using the direct learning model? 2) Which is more effective between learning mathematics using the Scramble learning model or learning mathematics using a direct learning model?

This study is 1) to find out the differences in students' mathematics learning outcomes in mathematics learning using Scramble learning models, and student learning outcomes in mathematics learning using direct learning models. 2) To determine the effectiveness of learning mathematics using the Scramble learning model or the effectiveness of learning mathematics using the direct learning model.

According to Mulyasa, E (2005: 82), in a sizeable Indonesian dictionary, it was stated that Effective means that there is an effect (its effects, effects, impressions), efficacious, efficacious, can bring results. So effectiveness is the suitability of the person carrying out the task with the intended target. Effectiveness is how an organization successfully obtains and utilizes resources to realize

operational goals. Based on this understanding, E. Mulyasa (2005: 82) states that effectiveness is related to the implementation of all the main tasks, the achievement of objectives, timeliness, and the participation of members.

According to Rusman (2012: 144-145), the learning model's understanding is a plan or pattern that can be used to shape the curriculum (long-term learning plan), design learning materials, and guide learning classroom or others.

Meanwhile, according to Trianto (2012: 51) in his research, the learning model is a plan or a pattern used as a guide in planning learning in class or learning in a tutorial.

According to Shoimin, Aris (2013: 166), Scramble is a learning model that invites students to determine answers and solve problems by distributing question sheets and answer sheets that have been accompanied by alternative answers available. According to Robert B. Taylor in the book of Huda, Miftahul (2016: 303) explains that Scramble is an appropriate learning method to improve student thinking concentration and speed. This method requires students to combine the right brain and the left brain.

METHODS

This research is experimental. This research is used to determine whether or not there are differences in learning outcomes between two classes with different treatments. The first class uses the Scramble learning model, and the second class uses the direct learning model. The population is the subject of research. (Suharsimi Arikunto, 2013: 173). The population of this study was students of class VII odd semester of SMP Muhammadiyah 1 aside in the academic year 2019/2020 consisting of VII classes namely VII A, VII B, VII C, VII D, VII E, VII F, and VII G. With total students are 242 students. While the sample in this study was class VII B with 34 students and class VII C as many as 34 students, sampling in this study using random sampling techniques. The techniques used in collecting data in this study are documentation, initial ability data (UTS scores of odd semester 2019/2020), and test techniques in the form of objective questions in multiple-choice. Test the instrument using test item validity, differentiation test, and reliability test. Prerequisite Test Analysis uses the normality test with the Chi-Square formula and homogeneity test. Hypothesis testing uses the first hypothesis test and the second hypothesis test.

RESULTS AND DISCUSSION

The summary description of the initial capability scores can be seen in Table 2.

Table 2. A summary of the initial capability values

Class	Parameter			
	N	The highest score	Lowest score	\bar{X}
Experiment	32	82	52	68,0313
Control	32	80	42	64,75

As for the summary of normality test results of initial capability can be seen in table 3.

Table 3. Normality test results of initial capability

Class	χ^2_{count}	χ^2_{Table}	Significant Level	DF	Information
Experiment	9,1158	9,4877	5%	5	Normal
Control	0,3267	9,4877	5%	5	Normal

Samples were obtained $\chi^2_{\text{count}} < \chi^2_{\text{table}}$ so that experimental class and control class distributed normally.

As for the summary results of the homogeneity test results, initial capability can be seen in table 4.

Table 4. Summary results of initial homogeneity test scores

χ^2_{count}	χ^2_{table}	Significant Level	df	Information
2,85085	12,59159	5%	6	Homogenous

$\chi^2_{\text{count}} < \chi^2_{\text{table}}$ results are obtained at a significance level of 5% and a degree of freedom 6. This means that the sample has a homogeneous variance.

The summary results of the average similarity of students' initial mathematical abilities can be seen in Table 5.

Table 5. Summary of Equivalence Tests for Average Initial Values

t_{count}	t_{table}	Significant Level	DF	Information
0,0859	1,9990	5%	62	H_0 accepted and H_1 rejected

This means $-t_{\text{table}} < t_{\text{count}} < t_{\text{table}}$. So H_0 accepted, and H_1 rejected. It can be concluded that there is no significant difference between the initial ability of the experimental class and the initial ability of the control class.

Data description of students' mathematics learning outcomes after the experiment is presented in Table 6 as follows:

Table 6. A summary of the value of studying mathematics

Class	Max	Min	\bar{X}	S	S^2	N
Experiment	100	40	76,40625	14,58994	212,86621	32
Control	85	45	67,34375	11,17925	124,97559	32

A summary of the normality test scores of the experimental class's mathematics learning outcomes and the control class is presented in Table 7.

Table 7. Summary of normality test results of studying mathematics

Class	χ^2_{count}	χ^2_{Table}	Significant Level	DF	Information
Experiment	1,2457	9,4877	5%	5	Normal
Control	0,5754	9,4877	5%	5	Normal

Obtained $\chi^2_{\text{count}} < \chi^2_{\text{table}}$. This shows that the value data results study the mathematics experiment class and control class normally distributed.

A summary of the homogeneity test of the experimental class's mathematics learning outcomes and the control class can be seen in Table 8.

Table 8. A summary of the homogeneity test results of studying mathematics

χ^2_{count}	χ^2_{table}	Significant Level	DF	Information
2,1724	3,8415	5%	1	Homogenous

Obtained $\chi^2_{\text{count}} < \chi^2_{\text{table}}$. This means that the sample has a homogeneous variance.

The first hypothetical test summary is presented in table 9.

Table 9. Summary test results first

t_{count}	t_{table}	Significant Level	DF	Information
2,7891	1,999	5%	62	H_0 rejected and H_1 accepted

Obtained $t_{\text{count}} > t_{\text{table}}$, so H_0 rejected and H_1 accepted. This shows differences in mathematics learning outcomes between students whose learning uses the Scramble learning model and students whose learning uses the direct learning model.

A summary of the second hypothesis test is presented in Table 10 as follows:

Table 10. Summary of the Second Hypothesis Test

t_{count}	t_{table}	Significant Level	DF	Information
2,7891	1,999	5%	62	H ₀ rejected and H ₁ accepted

Obtained $t_{\text{count}} > t_{\text{table}}$, so H₀ rejected and H₁ accepted. This shows that learning mathematics using the Scramble learning model is more effective than the direct learning model.

CONCLUSION

Based on the analysis of the experimental data and its discussion, this activity concludes the following:

1. There is a difference in mathematics learning outcomes between students whose learning uses the Scramble learning model and the direct learning model of Grade VII students of SMP Muhammadiyah 1 Minggir, Sleman Regency Academic Year 2019/2020.
2. The Scramble learning model is more effective than the direct learning model of the mathematics learning outcomes of Grade VII odd semester students of SMP Muhammadiyah 1 Minggir Academic year 2019/2020.

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